

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Withdrawn): A method for manufacturing a membrane electrode assembly for a solid polymer type fuel cell comprising: a process for forming an intermediate lamination layer body by laminating a catalyst electrode layer formed with a mixture including electrolyte polymer having the ion conductivity and a conductive miniature body including a catalyst on an electrolyte membrane including an ion conductivity; a process for hot pressing for forming the membrane electrode assembly to unify the intermediate lamination layer body and porous gas diffusion layers positioned on both sides on the intermediate lamination layer body in a thickness direction; wherein the intermediate lamination layer body is heat treated by maintaining heating at a temperature range equal to or higher than a glass-transition temperature of the electrolyte polymer included in the catalyst electrode layer and equal to or lower than thermal decomposition temperature before the hot pressing process under a condition that the gas diffusion layers are not laminating on the intermediate lamination layer body.

Claim 2 (Withdrawn): A method for manufacturing a membrane electrode assembly for a solid polymer type fuel cell according to claim 1, wherein the heat treatment is performed in a heat treatment oven either at an inactive ambient or at an atmosphere.

Claim 3 (Withdrawn): A method for manufacturing a membrane electrode assembly for a solid polymer type fuel cell according to claim 1, wherein the heat treatment is performed at a state that a pressure is not applied to the intermediate lamination layer body in a thickness direction.

Claim 4 (Withdrawn): A method for manufacturing a membrane electrode assembly for a solid polymer type fuel cell according to claim 1, wherein a time for heat treatment is predetermined longer than a time for the hot pressing.

Claims 5 (Currently Amended): A method for manufacturing a membrane electrode assembly for a solid polymer type fuel cell comprising:

a process for forming an intermediate lamination layer body by laminating a catalyst electrode layer formed with a mixture of an electrolyte polymer having the ion conductivity and a conductive miniature body including a catalyst on a porous gas diffusion layer

wherein the porous gas diffusion layer comprises carbon cloth or carbon paper having electrically conductive particles and water repellent particles dispersed throughout the layer;

a process for hot pressing for forming a membrane electrode assembly by unifying an electrolyte membrane having the ion conductivity and the intermediate lamination layer bodies arranged both sides of the electrolyte membrane;

wherein the intermediate lamination layer body is heat treated by maintaining heating at a temperature range equal to or higher than the glass-transition temperature of the electrolyte polymer included in the catalyst electrode layer and equal to or lower than the thermal decomposition temperature before the process of hot pressing under a condition that the electrolyte membrane is not laminated on the intermediate lamination layer body.

Claim 6 (Currently Amended): A method for manufacturing a membrane electrode assembly for a solid polymer type fuel cell according to claim 5, wherein the heat treatment is performed in a heat treatment oven either in an inert atmosphere or in the presence of air. at an inactive ambient or at an atmosphere.

Claim 7 (Original): A method for manufacturing a membrane electrode assembly for a solid polymer type fuel cell according to claim 5, wherein the heat treatment is performed at a state that a pressure is not applied to the intermediate lamination layer body in a thickness direction.

Claim 8 (Original): A method for manufacturing a membrane electrode assembly for a solid polymer type fuel cell according to claim 5, wherein a time for heat treatment is predetermined longer than a time for the hot pressing.

Claim 9 (New): A method for manufacturing a membrane electrode assembly for a solid polymer type fuel cell comprising:

applying a catalyst electrode layer directly to a porous gas diffusion layer to obtain an intermediate lamination layer body,

wherein the catalyst electrode layer comprises a mixture of an electrolyte polymer having ion conductivity and a conductive miniature body comprises a catalyst, and

wherein the porous gas diffusion layer comprises carbon cloth or carbon paper having electrically conductive particles and water repellent particles dispersed throughout the layer;

heat treating the intermediate lamination layer body at a temperature range equal to or higher than glass-transition temperature of the electrolyte polymer and equal to or lower than the thermal decomposition temperature to obtain a lamination layer body; and then

forming the membrane electrode assembly by hot pressing an electrolyte membrane having ion conductivity and the lamination layer bodies arranged both sides of the electrolyte membrane.

Claim 10 (New): A method for manufacturing a membrane electrode assembly for a solid polymer type fuel cell according to Claim 9, wherein the hot pressing occurs at a temperature lower than the temperature employed for the heat treating.

Claim 11 (New): A method for manufacturing a membrane electrode assembly for a solid polymer type fuel cell according to Claim 9, wherein the heat treating occurs in a heat treatment oven either in the presence of an inert gas or atmospheric gas.

Claim 12 (New): A method for manufacturing a membrane electrode assembly for a solid polymer type fuel cell according to Claim 9, wherein the heat treating occurs without applying a pressure to the intermediate lamination layer body in a thickness direction.

Claim 13 (New): A method for manufacturing a membrane electrode assembly for a solid polymer type fuel cell according to Claim 9, wherein a time for heating the intermediate lamination layer body at a first temperature range is greater than a time for the hot pressing.

Claim 14 (New): A method for manufacturing a membrane electrode assembly for a solid polymer type fuel cell according to Claim 9, wherein the porous gas diffusion layer comprises at least about 33 wt% of water repellent particles based on the total amount of water repellent particles and electrically conductive particles.

Claim 15 (New): A method for manufacturing a membrane electrode assembly for a solid polymer type fuel cell according to Claim 9, wherein the conductive miniature body is selected from the group consisting of carbon black, activated carbon, and graphite.

Claim 16 (New): A method for manufacturing a membrane electrode assembly for a solid polymer type fuel cell according to Claim 9, wherein the catalyst comprises at least one metal selected from the group consisting of platinum, rhodium, palladium, and ruthenium.

Claim 17 (New): A method for manufacturing a membrane electrode assembly for a solid polymer type fuel cell according to Claim 9, wherein the porous gas diffusion layer comprises a carbon paper or a carbon cloth.